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ABSTRACT

With greater demands being placed on postsecondary education as employers report that graduates have inadequate skills, interest has been generated in assessing student academic achievement in reliable and valid ways. A descriptive case study was used to outline the process that has been developed to identify and implement program outcomes for 55 programs at Western Wisconsin Technical College (WWTC). For the purpose of the study, program outcome was defined as a culminating demonstration of learning as applied in the workplace, as well as what is expected of learners who successfully complete all the course work and learning experiences. Program outcomes are identified by faculty, validated by business and industry, communicated to students, and assessed at program completion. The study sought to determine whether there are common program outcomes within each school division and across divisions, how programs are written; the frequency and type of assessment measures identified within each division; and the percentage of outcomes achieved within each division and across all four divisions. The ability to demonstrate effective written and oral communication skills was found to be the most common program outcome within the programs at WWTC, and alternative assessment measures are used as well as paper-and-pencil tests. Additional research was recommended to determine degrees of alignment between faculty and employer perceptions of student success by reviewing division assessment results with the college's employer satisfaction survey results. (Contains 27 references.) (KC)

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Developing and Implementing Program Outcomes and Assessment Measures for Postsecondary Programs

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Abstract

During the past several years, reports have indicated the inadequate skills of graduates, the changing demands of the workplace, and the declining competitiveness of U.S. firms in international marketplace. This has prompted the need to address educational preparation programs to ensure students have learned what is promised and that training is meeting the needs of business and industry. What better way to answer these questions than to assess student academic achievement. Assessment seeks to determine what students ought to know and to be able to do. There is a need to assess student academic achievement in reliable and valid ways. Career and technical education teachers are advocating the wider use of assessment measures. The purpose of this study is to outline the process that has been developed to identify and implement program outcomes for over 60 programs in a technical college. Data will be provided for Business, Family and Consumer Science, Health and Human Services, and Trades and Industrial Education associate degree and technical diploma programs.

Literature Review

For years postsecondary institutions have been assessing institutional effectiveness. These measures of institutional effectiveness have included retention rates; student, teacher and employer satisfaction; job placement and transfer rates; and student academic achievement. "In the last six years, there has been a dramatic change in the scope of assessing institutional effectiveness. The focus now is on the extent to which students are achieving the outcomes desired from college attendance" (Freidlander & MacDougall, 1990, p. 93). The need to assess student academic achievement in reliable and valid ways, comes partly from policy makers, who believe it is essential to measure the degree to which participants have mastered the skills upon which training focuses (Stecher, Rahn, Ruby, Alt, Robyn, & Ward, 1997). Assessing student academic achievement seeks to determine what students should know and be able to do when they graduate from college.

In 1991 Bragg (1992) defined outcomes assessment as "evaluative processes that determine the results of education at the institution, program, and student level" (p. iv). Bragg (1995) conducted a study to identify outcomes assessment practices in two-year

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postsecondary institutions. Outcomes assessment practices identified included academic achievement, transfer success, student and employer satisfaction, attainment of student goals, employment success, occupational skill attainment, job placement, and student persistence or retention. Few of the institutions who provided data were developing or implementing alternative assessment methods for the outcomes identified. Common assessment methods identified included standardized tests, transcript analysis, student and employer surveys, college placement data, licensure and certification exams, and enrollment patterns. Twenty-two percent of the participants indicated that the use of outcomes assessment was influenced by state agencies and accrediting organizations. Furthermore, the findings from Bragg's 1992 study concluded that postsecondary institutions were viewed as leaders in outcomes assessment; however, common assessment methods were still being used.

State government and regional accrediting agencies continue to encourage the implementation of outcomes assessment. Regional accrediting agencies require member institutions to implement outcome assessment measures (Marchese, 1990). In 1989, the North Central Association (NCA) Commission approved an assessment initiative for its member institutions to submit plans for assessing student learning (Lopez, 1997). Institutions affiliated with NCA began to develop assessment plans to assess their quality by *directly* assessing student learning.

Other regional accrediting bodies have responded to sustained public dissatisfaction with higher education by increasing their emphasis on institutional integrity and accountability as conditions of accredited status. The Middle States Association of Colleges and Schools [On-Line] has a framework for outcomes assessment and is reviewed as part of the accreditation process. The New England Association of Schools and Colleges (NEAS & C) [On-Line] has ten standards. Standard Four--Programs and Instruction--includes planning and evaluation to enhance achievement of program objectives, that all existing programs include an assessment of their effectiveness and continued need. NEAS & C requires institutions to have a student outcome assessment plan aimed at assessing student achievement. Results from the plan are used for institutional improvement. The Southern Association of Colleges and Schools [On-Line] has institutional effectiveness criteria requiring member institutions to document quality and effectiveness by employing a comprehensive system of planning and evaluation. Each institution must develop guidelines to evaluate the quality of student learning. Standard Three of the Western Association of Schools and Colleges [On-Line] addresses institutional effectiveness. This accrediting standard required institutions to have (a) outcomes and clear documentation of their achievement, (b) planning activities to communicate quality assurance, and (c) review evaluation processes to determine ongoing utility for assessing institutional effectiveness.

Each of these accrediting agencies has developed criterion based upon experience, research, and consultation with member institutions. These initiatives will place pressure on accredited institutions to demonstrate that students have learned what is promised or implied by the catalog's descriptions of academic programs and that continual improvement of student learning has become an institutional priority (Lopez, 1998b).

As another approach to accountability, states have begun to look at performance-based budgeting of public institutions of higher education. Layzell (1998) defines performance-based budgeting as the allocation of resources based upon institution's established goals and outcomes. Research studies conducted at public institutions of higher education (Ashworth, 1994; Burke & Serban, 1998; King, 2000; Layzell, 1998; & Pfeiffer, 1998) report the ongoing interest for accountability and programmatic outcomes. Performance-based budgeting is one way that legislators may get the greatest possible return on a state's expenditure (Ashworth, 1994). The *Chronicle of Higher Education* reports that states may soon link spending on colleges to institutional performance (Schmidt, 1998).

In addition to federal and state legislation, and accrediting agencies, researchers have produced numerous reports that define and discuss the skills students need for the workforce and jobs of the future (America's Choice: High Skills or Low Wages, 1990; Learning a Living, 1992; and SCANS, 1991). These reports likewise have contributed to the need for program outcomes and assessment measures in two-year colleges across the United States. "Community colleges will need to become "change-masters" to become more responsive to an uncertain future" (Phelan, 1997, p. 33).

The purpose of this study was to determine one institution's accomplishments to identify measurable outcomes used to assess student learning. It was felt that by identifying measurable outcomes to assess student learning; by identifying and using multiple measures to assess those outcomes; by collecting and interpreting data from those instruments; by disseminating the information about the results in structured feedback loops; and by using the information derived from the assessment of student learning to make pedagogical and curricular changes, the quality of student learning at Western Wisconsin Technical College (Western) could be greatly improved thereby enhancing the college's commitment to student success.

Conceptual Framework

For the purpose of this study, program outcome was defined as a culminating demonstration of learning as applied in the workplace, and what is expected of the learner who successfully completes all of the course work and learning experiences as part of a technical program (Ruhland, Samson, Brewer, & Hague, 1997). Program outcomes are identified by faculty, validated by business and industry, communicated to students, and assessed at program completion. Program outcomes were distinguished from general education outcomes for the purpose of this study. Faculty were encouraged to identify only those program outcomes that were related to the technical knowledge, skills, and attitudes required of students graduating from the program. Student outcomes were defined as changes that occur in individuals as a result of their participation in an educational experience (Bragg, 1992).

This study is based on a conceptual framework of components for an effective assessment program. Lopez (1998a) contends that assessment of student academic achievement is key to (1) improving student learning, (2) enabling an institution to verify

that it is being accountable to its internal and external stakeholders, and (3) documenting to the general public and interested parties the value of investing in higher education. Lopez suggests that three levels of implementation characterize an institution's assessment program: Level One: Beginning Implementation; Level Two, Some Implementation; and Level Three, On-Going Implementation. Each of these levels are described in Figure 1 and represent an institution's developmental approach to implementing an assessment program, which focuses on the assessment of student academic achievement.

Figure 1. Levels of Assessment Implementation – North Central Association.

Level One: Beginning Implementation of Assessment Programs	Level Two: Making Progress in Implementing Assessment Programs	Level Three: Maturing Stages of Continuous Improvement
• Assessment plans available for a number of departments/programs—not all	• Senior administration actively support assessment program, recognizes and rewards faculty's efforts to implement it	• Changes in pedagogy, curriculum, and/or academic support services made as a result of assessment data are communicated
• Program goals and explicit objectives for learning developed for a number of departments/programs—not all	• Results from measuring general education and the major are being collected and interpreted from some but not all programs	• Assessment plan is annually reviewed and updated
• Direct measures of student learning identified and data above the level of the classroom have been collected to a number of departments/programs—not all	• Clear feedback loops are being developed to ensure that the results of assessment are used to improve student learning and teaching	• Results of assessment of student learning are linked to academic program review

Identification of program outcomes supports overall program effectiveness and documents student academic achievement. Assessing program outcomes can determine whether the student can perform the intended program outcome. Outcomes provide increased accountability and document student academic achievement. The benefits of program outcomes include (a) a clear understanding of what students are to know and be able to do at the completion of their program, (b) documentation of skill attainment for employers, (c) industry-validated outcomes as a basis for curriculum development, and (d) occupational skills standards for a competitive workforce.

Methodology

The research methodology used in this study was descriptive case study. The associate degree and technical diploma programs at Western were analyzed and reviewed for this study. Western is one of sixteen publicly-funded technical colleges in the Wisconsin

Technical College System. The college offers 37 associate of applied science degree programs; 18 technical diploma programs; 4 certificates; and 7 special certificate programs. Western serves approximately 3500 full-time equivalent students and employs approximately 250 faculty.

Programs were representative of the four divisions and included 15 Business programs, 5 Family and Consumer Science programs, 18 Health and Human Services programs, and 17 Trades and Industrial Education programs. Faculty from each of the program areas worked as teams to identify the program outcomes, assessment measures, criteria, assessed if the outcomes were achieved, and provided feedback as to program improvement and changes as a result of the data.

The Student Academic Achievement Assessment document (see Figure 2) was analyzed to collect data for this descriptive case study. This document provides qualitative and quantitative data related to program outcomes, assessment measures, criteria, and assessment feedback

Figure 2. Student Academic Achievement Assessment Form.

Student Academic Achievement Assessment					
Institutional Effectiveness Indicator: (Student Achievement and Satisfaction)					
Student Knowledge and Skills at Exit					
Division:			Program:		
Graduation Date:			Number of Graduates:		
Program Outcomes	**Assessment Measure(s)**	**Criteria**	**Where Measured**	**Data** *Did the majority of graduates achieve this outcome according to the established criteria? YES NO*	**Feedback** *What improvements/ changes will you make based on data?*

The four primary research questions addressed in this study were as follows:

1. Are there common program outcomes identified within each division? Across all four divisions?
2. What percentage of program outcomes used verbs written at the upper level in each educational domain (cognitive, affective, and psychomotor)?
3. What was the frequency and type of assessment measures identified within each division?
   cross all four divisions?
4. What is the percentage of outcomes achieved within each division? Across all four divisions?

During the fall 1998, the college took steps to fully implement the NCA assessment plan. The fall in-service program began the process to assist the 55 programs within the college with identifying program outcomes. When writing the program outcomes, faculty were encouraged to write the outcomes using Bloom's taxonomy (1956) of educational domains. Emphasis was placed on outcomes being written at level III or higher. Using action verbs from level III or higher ensures students moving from the most basic to the most complex type of learner action.

The January 1999 in-service was used to inform faculty about alternative forms of assessment. Alternative forms of assessment include on-the-job evaluations, interviews, portfolio, paper-and-pencil tests, simulations, and interviews (Darling-Hammonds, Wise, & Kline, 1995). Program faculty were given until May 1999 to identify the assessment measure(s) for each program outcome. Following this step, faculty teams then identified the criteria that would measure each outcome. The last step in the assessment plan was to gather data from May 2000 graduates and subsequently have faculty teams assess student academic achievement of the program outcomes. Data collection focused on asking the faculty to indicate with a yes or no if they felt the majority of their graduates had achieved the program outcomes. This step supports the learning paradigm in which institutions measure effectiveness based upon student learning outcomes. In a learning paradigm "colleges will be concerned about the quality of exiting students and how much the students have learned" (Boggs, 1995-96, p. 26).

Qualitative methods were used to analyze the data to include patterns and themes (commonality among program outcomes within each program and divisions), clustering (types of assessment measures identified and criteria used to evaluate), counting (average number of program outcomes for associate degree and technical diploma programs, and average number of criteria met) (Miles & Huberman, 1994).

Results

Research question 1 asked, "Are there common program outcomes identified within each division? Across all four divisions?" The 55 programs at Western had 12 common program outcomes. Table 1 lists the program outcomes in rank order by frequency. Demonstrate (utilize) effective communication (oral and written) skills were the most common program outcome identified by 25 (45%) programs. Some programs within each division selected a different verb to use with the outcome. Program outcomes identified by only one program are not reported. The average number of program outcomes by program in each division included (a) 15 program outcomes in the business division, (b) 16 program outcomes in the family and consumer sciences division, (c) 10 program outcomes in the health and human services division, and (d) 11 program outcomes in the trade and industrial education division.

Research question 2 asked, "What percentage of program outcomes used verbs written at the upper level in each educational domain (cognitive, affective and psychomotor)?" The analysis of verbs used in each outcome was coded using Bloom's (1956) *Taxonomy of Educational Objectives*. Table 2 reveals that all program outcomes were at a Level III or

Table 1
Common Program Outcomes

Program Outcomes	B n	FCS n	HHS n	TI n	College N
Demonstrate (utilize) effective communication (oral and written) skills.	11	5	7	2	25
Demonstrate (apply) use of computer tools, software, and appropriate applications.	10	2	2	1	15
Apply legal and ethical principles to personal, social, and professional behavior.	10	2	2	1	15
Function (operate) as a team member.	7	0	2	2	11
Establish (maintain) a safe work environment, adhere to safety procedures.	0	0	3	8	11
Think critically in solving problems and applying knowledge	4	0	3	2	9
Exhibit (display) professionalism.	0	0	2	6	8
Formulate (create) a professional development plan.	5	1	1	0	7
Apply (demonstrate) mathematical skills.	1	0	0	4	5
Demonstrate effective presentation skills.	4	0	0	0	4
Apply effective leadership skills.	4	0	0	0	4
Use time management techniques effectively.	3	0	0	0	3

Note. B = Business, FCS = Family and Consumer Sciences, HHS = Health and Human Services, and TI= Trade and Industrial Education. Verb changes are note in parentheses.

higher and that 288 (42%) of the 691 outcomes were at Level V or higher. The majority of program outcomes within the college and four divisions were written in the cognitive domain at the application level.

Research question 3 asked, "What was the frequency and type of assessment measures identified within each division? Across all four divisions?" Responses to types of assessment measures identified varied within the four divisions and across the 55 programs. The most common assessment measure identified by all four divisions was performance tasks and student exhibition (see Table 3). Thirty-two (58%) of the 55 programs identified this assessment measure within their program. In most cases

performance tasks and student exhibition was used for multiple program outcomes within an overall program. The most common assessment measure by division was "checklist (lab/performance)" for 10 (67%) business programs, "checklist (lab/performance)" for three (60%) of the family and consumer sciences programs, "professional association/ licensure exams" for ten (56%) of health programs, and "performance tasks and student exhibition" for 14 (82%) of the trades and industrial education programs.

Table 2
Program Outcome by Division and Domain Level

Domain	B n	FCS n	HHS n	TI n	College n
Cognitive					
Application (C-III)	64	18	62	29	173
Analysis (C-IV)	9	5	10	10	34
Synthesis (C-V)	48	5	13	12	78
Evaluation (C-IV)	29	9	12	23	74
Division Total	150	37	97	15	359
Affective					
Valuing (A-III)	28	13	22	12	53
Organization (A-IV)	14	2	18	17	51
Characterization (A-V)	8	5	13	16	42
Division Total	28	20	53	45	146
Psychomotor					
Guided Response (P-III)	1	2	1	2	7
Mechanism (P-IV)	19	14	17	35	85
Complex Overt Response (P-V)	25	2	24	29	80
Adaptation (P-VI)	0	0	1	0	1
Origination (P-VII)	7	4	0	2	13
Division Total	52	22	33	68	186

Note. B = Business, FCS = Family and Consumer Sciences, HHS = Health and Human Services, and TI = Trade and Industrial Education.

Research question 4 asked, "What is the percentage of outcomes achieved within each division? Across all four divisions?" Three of the 55 programs did not provide data related to the program outcomes achieved by the graduates. Within the business division programs, 226 (94%) program outcomes were achieved by 252 program graduates. The family and consumer sciences division had 62 (87%) program outcomes achieved by 27

Table 3
Type of Assessment Measures

Division Assessment Measure	B n	FCS n	HHS n	TI n	College n
Accreditation exam	0	0	1	0	1
Capstone/clinical experience	2	1	5	6	14
Case analysis/presentations	6	0	1	0	7
Checklist (lab/performance)	10	3	4	3	20
Clinical evaluation forms	0	0	7	0	7
Competency performance sheet	0	0	5	2	7
Employer survey	0	0	3	0	3
Graduate follow-up surveys	0	0	5	0	5
Instructor observation	6	1	5	4	16
Internship	1	1	0	1	3
Journals	1	0	1	0	2
Paper-and-pencil test (written exam)	8	2	5	3	18
Peer/self evaluation	1	0	1	0	2
Performance tasks and student exhibition	8	3	8	14	32
Personal interviews	0	0	1	0	1
Portfolio	8	2	6	6	22
Practicum teaching	0	2	0	0	2
Professional association/licensure exam	0	0	10	3	13
Program exit exam	0	0	0	1	1
Simulation (project)	6	1	0	1	8
Student completion of program requirements	0	0	1	0	1
Technical report/project (written)	7	2	1	0	10

Note. Total programs in each division include Business (B) n = 15; Family and Consumer Sciences (FCS) n = 5; Health and Human Services (HHS) n = 18; and Trade and Industrial Education (TI) n = 17.

program graduates. Within the health and human services division, 659 (97%) program outcomes were achieved by 465 program graduates. Trade and industrial education had 183 (97%) program outcomes achieved by 216 program graduates. Overall, 625 (95%) of the program outcomes were achieved by 960 graduates within the four divisions.

Discussion and Recommendations

This study supports the efforts required of accrediting agencies (Marchese, 1990) to implement outcomes assessment measures. In addition, findings from this research study support three of the five components that NCA (Lopez, 1998a) identified as essential for

an assessment program. Results from Western's assessment efforts over the past two years identify assessment of student academic achievement at Level Two (Making Progress in Implementing Assessment Programs). Faculty identified measurable program outcomes, alternative assessment measures, and evaluated the achievement of student outcomes. Continued assessment efforts will move the college to Level Three (Maturing Stages of Continuous Improvement) resulting in changes in pedagogy and curriculum, and linking the assessment results to academic program review.

Outcomes assessment should be a central part of a teacher's professional ethics. Outcomes assessment requires more than faculty time and additional committee work. It also involves structural changes in American higher education and the professional self-understanding of faculty (Holyer, 1998). When data have been analyzed for all programs, the next step will be to create benchmarks for comparison purposes. It will be imperative to provide documentation of program improvements and the resources needed to continue this effort.

The ability to demonstrate effective written and oral communication skills was the most common program outcome within the 55 programs at Western. This finding is consistent with the national reports identifying the skills students' need (America's Choice: High Skills or Low Wages, 1990; Learning a Living, 1992; and Scans, 1991). Of the 12 common program outcomes identified, four of the program outcomes align with the SCANS foundations (basic skills, thinking skills, and personal qualities) and four outcomes align with the competencies (manage resources, information, and interpersonal skills).

Findings from this study indicate that faculty are moving towards implementing alternative assessment measures to assess student academic achievement, but common methods consistent with Bragg's (1995) study were also identified in this study. Paper-and-pencil tests (33%) were still used by the faculty in this study. However, alternative assessment measures are being used by faculty to assess student academic achievement. When using alternative assessment measures, faculty can directly examine and judge the student's actual performance on significant and relevant tasks.

Further research should be conducted to review, by division, the feedback received related to the achievement of program outcomes. In addition, input from faculty is needed to determine what pedagogical and curriculum changes have been implemented as a result of the assessment of student learning. Information should be synthesized to note any patterns and themes faculty encountered which would assist in developing a feedback plan for improvement.

Additional research should be conducted to compare the assessment results with the college's employer satisfaction survey results to determine degrees of alignment between faculty and employer perceptions of student success. In addition, program advisory committee members should be surveyed to determine their perception about students

achieving the program outcomes. Research needs to be conducted to collect data from other technical colleges to compare and contrast program outcomes and assessment measures by division and across the college.

References

America's Choice: High Skills or Low Wages. (1990). The report of the commission on the skills of the American workforce. Washington, DC: National Center on Education and the Economy.

Ashworth, K. H. (1994, November/December). Performance-based funding in higher education: The Texas case study. Change, 26, 8-15.

Bloom, B. S. (1956). Taxonomy of educational objectives: The classification of educational goals. Handbook I: Cognitive domain. New York: David McKay Company Inc.

Bragg, D. D. (1995). Assessing postsecondary vocational-technical outcomes: What are the alternatives? Journal of Vocational Education Research, 20(4), 15-39.

Bragg, D. D. (1992). Alternative approaches to outcomes assessment for postsecondary vocational education (MDS-239, pp. 1-14). Berkeley, CA: National Research Center in Vocational Education.

Boggs, G. R. (1995-96, December/January). The learning paradigm. Community College Journal, 66(3), 24-27.

Burke, J. C. & Serban, A. M. (1997-98, December-/January). Performance funding; Fashionable or emerging trend? Community College Journal, 68, 26-29.

Darling-Hammonds, L., Wise, A. E., & Klein, S. P. (1995). A license to teach: Building a profession for the 21st-century schools. Boulder: Westview Press.

Freidlander, J., & MacDougall, P. R. (1990). Responding to mandates for institutional effectiveness. New Directions for Community Colleges, (72), 93-100.

Holyer, R. (1998). The road not taken. Changes, 41-43.

King, F. A. (2000, July/August). The changing face of accountability. The Journal of Higher Education, 71(4), 411-431.

Layzell, D. T. (1998). Linking performance to funding outcomes for public institutions of higher education: The US experience. European Journal of Education, 33(1), 103-111.

Learning a Living: A Blueprint for High Performance. (1992). A scans report for America 2000. Washington, DC: United States Department of Labor.

Lopez, C. L. (1998a). The commission's assessment initiatives: A progress report. Paper presented at the 103rd annual meeting of the North Central Association, Chicago, IL.

Lopez, C. L. (1998b). Making progress on programs to assess student learning: Why we need to succeed and how we can. Paper presented at the council of North Central Two Year Colleges, Rapid City, SD.

Lopez, C. L. (1997). Opportunities for improvement: Advice from Consultant-Evaluators on programs to assess student learning. Chicago, IL: North Central Accreditation Commission on Institutions of Higher Education.

Marchese, T. J. (1990, Fall). Introduction. NCA Quarterly, 65(2), 371-373.

Middle States Association of Colleges and Schools [On-Line]. Available at (http://www.msache.org).

Miles, M. B. & Huberman, A. M. (1994). Qualitative Data Analysis (2nd ed.). California: Sage Publications.

New England Association of Schools and Colleges [On-Line]. Available at (http://www.neasc.org).

Phelan, D. J. (1997, February/March). The niche community college: Is it our future? Community College Journal, 67, 30-33.

Ruhland, S. K., Samson, H. E., Brewer, J. A., & Hague, D. G. (1997). Marketing program outcomes: The building blocks of an associate degree program. Wisconsin Technical College System, Madison, WI.

Schmidt, P. (1998, July 19). Governors want fundamental changes in colleges, question place of tenure. The Chronicle of Higher Education, p. A38.

Secretary's Commission on Achieving Necessary Skills. (1991). What work requires of schools: A SCANS report for America 2000. Washington, D.C.: United States Department of Labor.

Southern Association of Colleges and Schools [On-Line]. Available at (http://www.sacsoc.org).

Steckher, B. M., Rahn, M. L., Ruby, A., Alt, M. N., Robyn, A. & Ward, B. (1997). Using alternative assessment in vocational education (MDS-946). Berkeley, CA: National Research Center in Vocational Education.

Western Association of Schools and Colleges [On-Line]. Available at (http://www.accjc.org).